



OSATE overview & community updates

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Overview of OSATE2

Eclipse-based AADL editor

- Support for AADLv2.1, up to date with latest standard revisions
- Textual (Xtext-based) and Graphical (Graphiti-based) edition capabilities

Support for quantitative analysis

- SEI-based plug-ins (latency, performance, etc.)
- Third-party plug-ins (code generation, scheduling analysis)

OSS development model

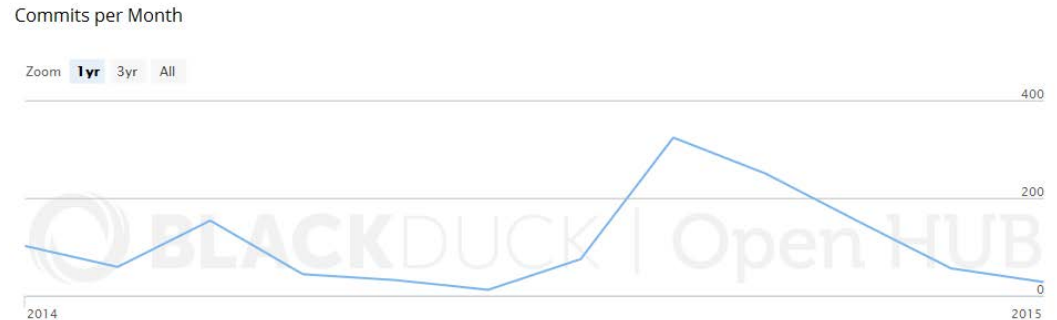
- Public SCM and bugtrack, open to external contribution
- Licensed under EPL license



Statistics update

Code base

- More than 6M lines of code
- Mostly generated



Community

- 1900+ commits over a year !
- More than 20 contributors with ~5 active

Number of Contributors



Software Quality

- Integrated test suite
- Test Analysis and Model Instantiation

See. <https://www.openhub.net/p/osate>



Integration of AGREE and RESOLUTE

Collaboration within the AADL/OSATE community

Hosted on shared github repository (<https://github.com/smaccm/smaccm>)

Integrated in the OSATE testing version

Improvements of RESOLUTE

Support of list and not set for values

Better casting operations

Integrate RESOLUTE for model validation

System Requirements (i.e. security, safety)

Model consistency before invoking other tools (i.e. code generation)



Use of pre-defined RESOLUTE theorems

The screenshot shows the ADL Studio IDE interface. The main editor displays AADL code for a system implementation. The left sidebar shows the 'Problems' view with a list of compliance checks. A context menu is open over the 'check_deos_compliance' problem, showing options like 'Resolute', 'AGREE', and 'AADL to Sexp'.

```
system node
end node;

system implementation node.impl
subcomponents
  cpu : processor module.impl;
  part1 : process pr_sender.impl;
  part2 : process pr_receiver.impl;
  mem : memory mainmemory.impl;
connections
  c0 : port part1.dataout -> part2.datain;
properties
  Actual_Processor_Binding => (reference (cpu part1)) applies
```

Problems

- check_deos_compliance(node_impl_Instance : twoparts_sampling::node.impl)
 - Check compliance of the model to be generated with the DeOS code generator
 - Check compliance of the model with ARINC653 annex
 - All processes are bound to a memory segment and a virtual processor
 - Check compliance of the processors
 - Check compliance of processor 'cpu : twoparts_sampling::module.impl'
 - Virtual Processors are in processors and have the property Partition_Identifier and Partition_Name
 - Compliance of processes contained in system 'node_impl_Instance : twoparts_sampling::node.impl'
 - Check memory segment of system 'node_impl_Instance : twoparts_sampling::node.impl' with the following properties: base_address and memory_size
 - Check that runtimes of system 'node_impl_Instance : twoparts_sampling::node.impl' have the properties period and exeection_time

Context Menu:

- Debugging: Serialize as 'mypack.aadl' text
- Save As XML
- Instantiate System
- Ocarina
- Open Diagram
- Resolute
- AGREE
- AADL to Sexp



Improvement of Graphical Editor

Current Improvements

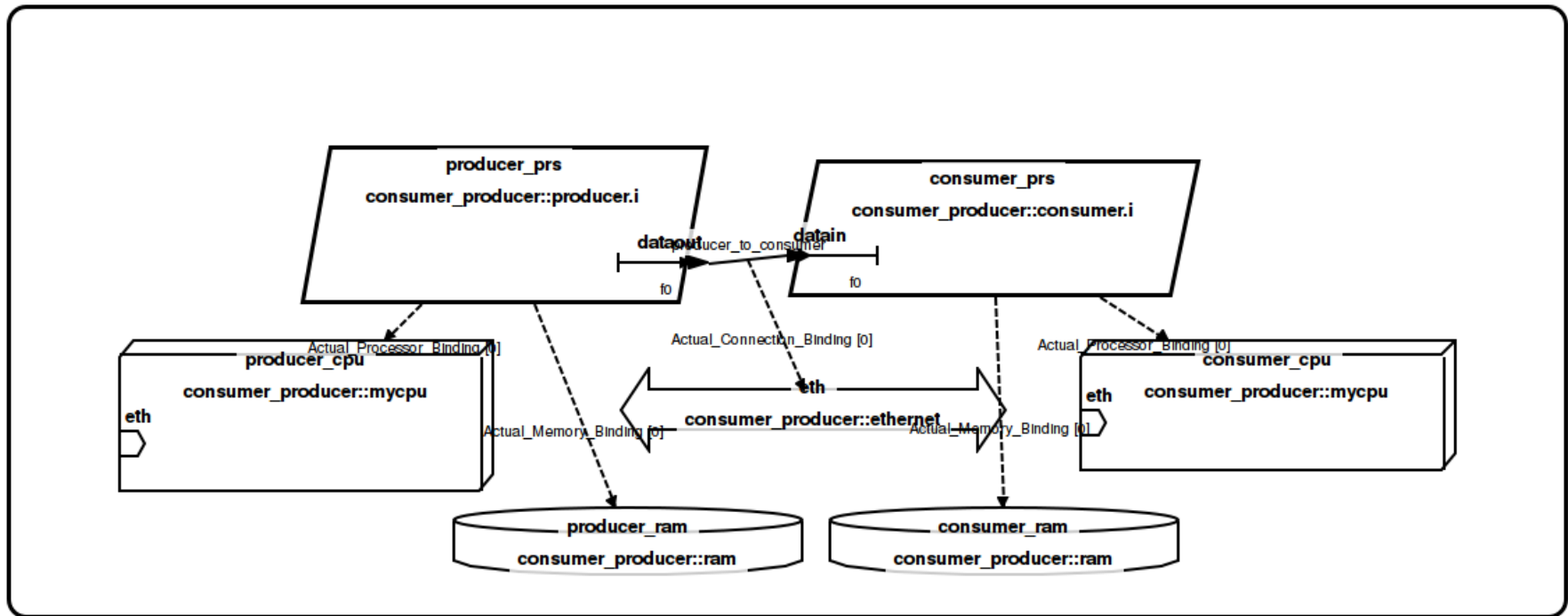
- Processor and Internal Feature Support
- Array Support (e.g. creation, editing dimensions)
- Nested View
- Visualization of Bindings (i.e. processors, memories, etc.)

Planned Improvements

- Improved automatic layout
- Editing Call Sequences



Improvement of Graphical Editor - example



Ocarina Bridge

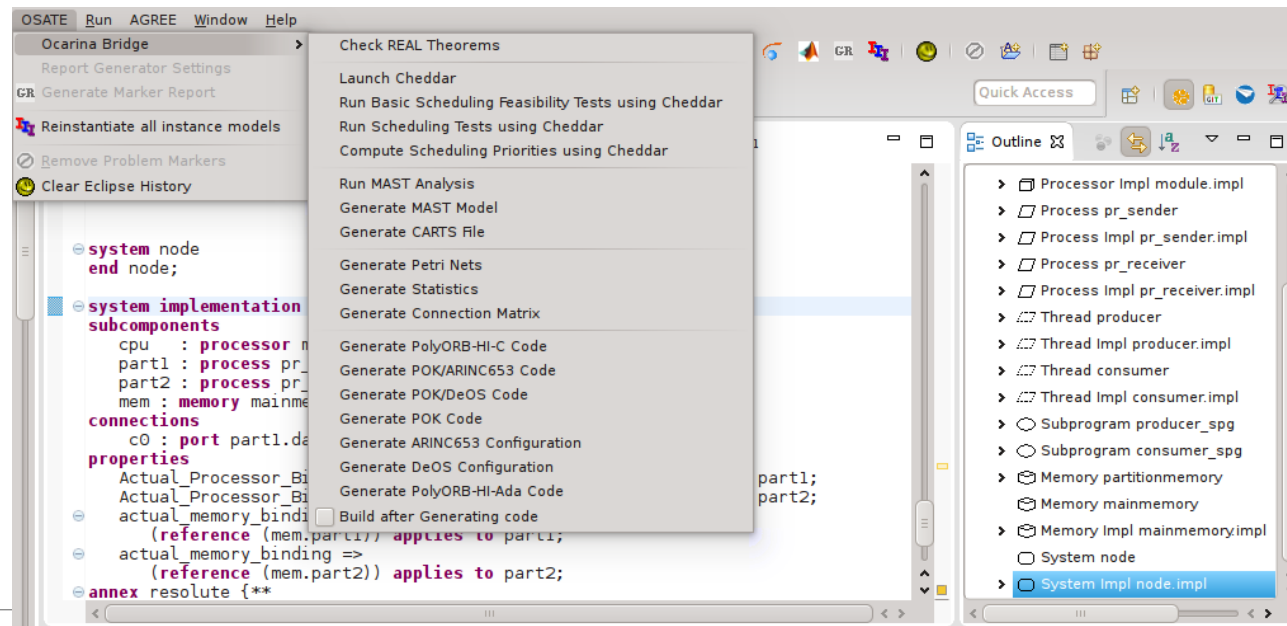
Connect OSATE with Ocarina

Need to download Ocarina (cf. <http://www.openaadl.org>)

Invoke Ocarina with OSATE models

Bring code generation capabilities

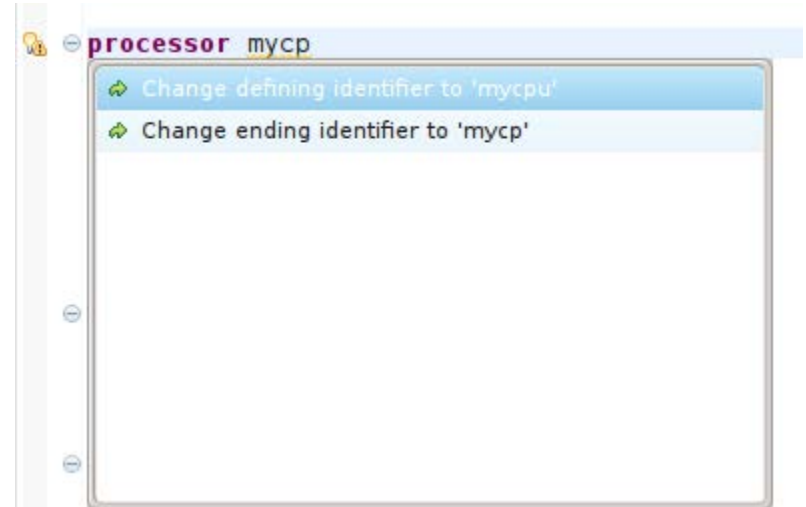
Currently work for DeOS



Maintenance and Bugfixes

Integration of quick fixes

- Correct mistyped models
- Suggest replacement
- Better user experience



Improvement of Property Editor

- Support of list of list
- Support of ranges



Public Model Repository

Core examples

- Demonstrate main language capabilities

- Modeling patterns & model samples for beginners

Error-Model examples

- EMV2 model constructs

- Demonstration of tools

Case-Studies

- AIR6110

- Public version of existing projects

<https://github.com/osate/examples/>



Getting Support

Github

- Public bugreport
- Source code changes tracking

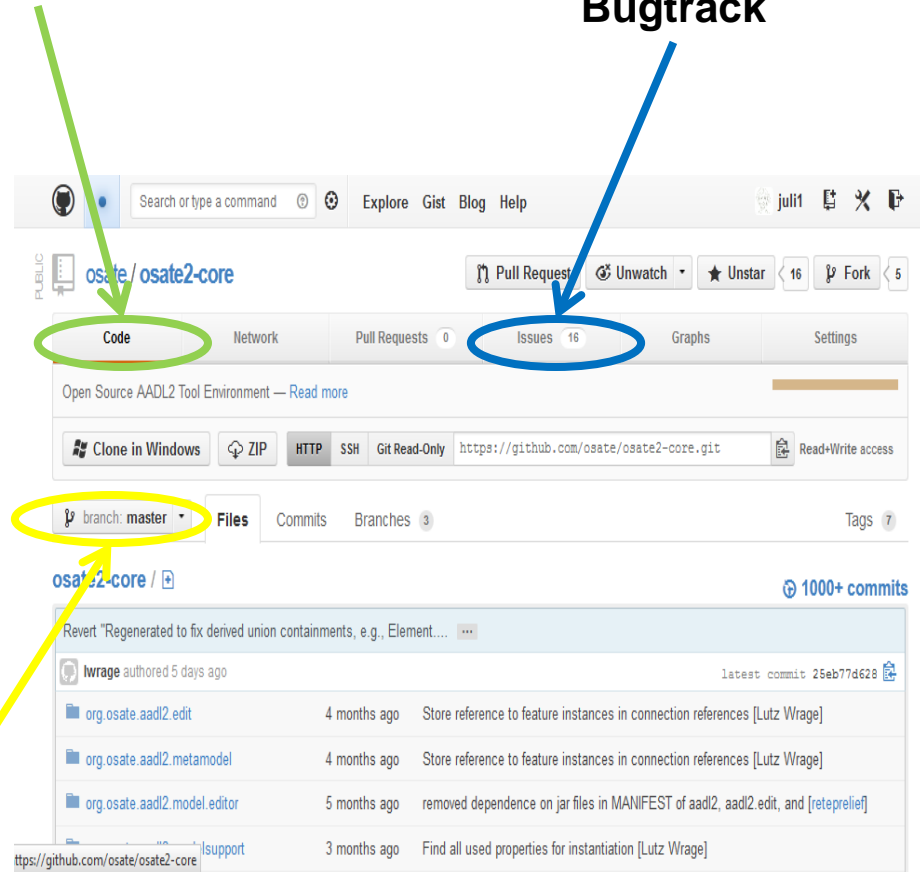
Wiki

- Maintain research doc.
- Populate with documentation
- Ease community involvement

Mailing-List

View code revision

Bugtrack



Community update – ACVI workshop

AADL dedicated Workshop

Replace the AADL user days

Engage with other communities

Organization of 2015 edition

2014 edition at MoDELS – quite a success

Need to find a location for the 2015 edition

Need suggestion/contributions

Stick with MoDELS? Use another venue?

Please contact us if you are willing to help!



Conclusion

Integration of new capabilities

- RESOLUTE & AGREE
- Ocarina bridge for code generation

New release to come

- Integration of all new features
- Include many fixes and a better user experience

AADL community open to contribution

- Open Development Model (OSS tools & license)
- New discussions support (mailing-list, blog, remote meetings)



Links and other useful information

OSATE-related tools

- Wiki: https://wiki.sei.cmu.edu/aadl/index.php/Osate_2
- Github: <https://github.com/osate/>
- Ohloh: <https://www.openhub.net/p/osate>

General AADL discussions

- Main AADL website: <http://www.aadl.info>
- SEI blog: <http://blog.sei.cmu.edu/>
- AADL mailing-lists https://wiki.sei.cmu.edu/aadl/index.php/Mailing_List



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